Assignment 4

Textbook Assignment: "Fire fighting Equipment and Systems," pages 5-11 through 5-64

Learning Objective: Identify construction features, operating principles and procedures of shipboard equipment for fighting fires.

4-1. What is the purpose of attaching the pickup tube to the Navy Pickup Unit nozzle?

1. To introduce air to the butt end of the nozzle
2. To mix foam liquid and air in the proper proportions
3. To discharge foam to the air port
4. To introduce foam liquid to the suction chamber of the nozzle

4-2. What foam-producing device uses two pickup tubes?

1. The duplx pressure proportioner
2. The straight-type auction proportioner
3. The S-type auction proportioner
4. The portable water motor proportioner (FP-180)

4-3. What minimum firemain pressure is required to operate the FP-180 water motor proportioner?

1. 75 psi
2. 125 psi
3. 150 psi
4. 175 psi

4-4, What is the ideal firemain operating pressure for the FP-180 water motor proportioner?

1. 75 psi
2. 125 psi
3. 150 psi
4. 175 psi

4-5. A 5-gallon container of AFFF concentrate will last how long?

1. 1 1/2 min
2. 2 min
3. 3 min
4. 4 min

4-6. The in-line foam inductor currently used in the Navy is rated at what capacity?

1. 50 gpm
2. 75 gpm
3. 95 gpm
4. 125 gpm

4-7. Firemain pressure to the in-line foam inductor must be maintained at what minimum pressure?

1. 75 psig
2. 95 psig
3. 100 psig
4. 125 psig

4-8. How many 50-foot lengths of hose may be used between the in-line foam inductor inlet and the fireplug discharge?

1. One
2. Two
3. Five
4. Four

4-9. With flows of 200 to 1000 gpm, the FP-1000, water rotor proportioner will give the moat accurate proportioning in what range of water motor inlet pressure?

1. 75 to 95 psig
2. 100 to 125 psig
3. 100 to 175 psig
4. 150 to 200 psig

4-10. The FP-1000 centrifugal-type booster pump with a minimum static head has what capacity?

1. 75 gpm
2. 100 gpm
3. 125 gpm
4. 175 gpm

4-11. Excessive pressure buildup and pump damage in positive displacement pumps is prevented by what type of valve?

1. Relief
2. Ball
3. Gate
4. Butterfly

4-12. What type of balanced-pressure proportioners are currently used in the Navy?

1. Types 1 and 2
2. Types 2 and 3
3. Types 1 and 3
4. Types 1 and 4

4-13. The amount of AFFF concentrate entering the type III proportioner is controlled by what means?

1. The pump horsepower rating
2. The firemain pressure
3. An orifice plate
4. The size of pipe used

4-14. AFFF concentrate tanks should be made of what material?

1. 90/10 copper-nickel
2. 304 stainless steel
3. K-Monel
4. 70/30 copper-nickel

4-15. The powertrol and powercheck valves are opened by what means?

1. By spring pressure on the diaphragm
2. By venting control line pressure
3. By pressurizing the operating chamber
4. By the coil assemblies creating a magnetic field

4-16. A powertrol valve with a test connection has what purpose?

1. To allow periodic drainage of the valve
2. To divert fluid flow when testing
3. To reduce initial pressure surge
4. To provide an emergency means to bypass the valve

4-17. The hytrol valve is opened by what means?

1. By venting the operating chamber
2. By pressurizing the operating chamber
3. By applying spring pressure on the diaphragm
4. By the coil assemblies creating a magnetic field

4-18. A hytrol valve with a test connection has what purpose?

1. To reduce initial pressure surge
2. To allow periodic drainage of the valve
3. To divert fluid flow when testing
4. To provide an emergency means to bypass the valve

4-19. What is the function of a 3-way interlock valve ?

1. To activate the nitrogen cylinder
2. To secure and vent control line pressure
3. To activate control line pressure when nitrogen is supplied to the interlock valve
4. To activate the powertrol valve

4-20. What causes a solenoid-operated pilot valve (SOPV) to close or open when it is activated electrically?

1. Coil assemblies creating a magnetic field
2. Hydraulic pressure
3. A switch creating a magnetic field
4. Control line pressure

4-21. The odd numbered ports of the SOPV are routed to what type of valve?

1. Balancing
2. Check
3. Hytrol
4. Powertrol

4-22. What type of manual control valve is used to actuate the hytrol or hycheck valve?

1. Neutral/open, two port
2. Closed/open, three port
3. Closed/neutral/open, three port
4. Closed/neutral/open, four port

4-23. A balancing valve has what number of operating chambers?

1. One
2. Two
3. Three
4. Four

4-24. What is the function of a balancing valve?

1. To adjust the pressure of seawater to produce light water
2. To proportion AFFF and seawater to produce light water
3. To reduce seawater pressure
4. To adjust the pressure of AFFF to the pressure of seawater

4-25. A single agent hose reel contains which of the following lengths of 1 1/2 inch hose?

1. 50 or 100 ft
2. 75 or 125 ft
3. 100 or 125 ft
4. 125 or 150 ft

4-26. The two types of single agent hose nozzles are rated at what rate of flow for the (a) trigger-operated nozzle, and the (b) ball-operated nozzle?

1. (a) 60 gpm (b) 180 gpm
2. (a) 75 gpm (b) 125 gpm
3. (a) 95 gpm (b) 125 gpm
4. (a) 95 gpm (b) 135 gpm

4-27. The 12-gpm injection system has what type of water control valve?

1. Hytrol
2. Hycheck
3. Powercheck
4. Powertrol

4-28. The two-speed injection system will inject AFFF concentrate into the water stream at what rates of flow?

1. 27 or 65 gpm
2. 30 or 48 gpm
3. 40 or 56 gpm
4. 46 or 62 gpm

4-29. The two-speed injection station can be activated locally with the local controls on the motor controller.

1. True
2. False

4-30. The single-speed injection system is installed only on what class of ship?

1. CV's
2. DDG's
3. FF's
4. FFG's

4-37. AFFF injection systems have no pressure drop, but they have a high use of AFFF concentrate.

1. True
2. False

4-32. Twin-agent equipment uses what firefighting agents?

1. Water and CO_2
2. AFFF and PKP
3. Halon and AFFF
4. Halon and PKP

4-33. The PKP dry chemical tank holds how many pounds of PKP when properly filled?

1. 75 lb
2. 100 lb
3. 125 lb
4. 175 lb

4-34. The nitrogen cylinder of the twin-agent system has what capacity?

1. 10 cu ft
2. 90 cu ft
3. 110 cu ft
4. 180 cu ft

4-35. The rupture diet in the valve of a nitrogen cylinder on a twin-agent system will rupture between whet pressure ranges?

1. 2215 to 2850 psig
2. 3000 to 3300 psig
3. 3200 to 3500 psig
4. 3600 to 4000 psig

4-36. The nitrogen cylinder of the twin-agent system must be replaced when the pressure drops below

1. 750 psig
2. 1500 psig
3. 2200 psig
4. 2315 psig

4-37. The pressure regulator of the twin-agant system reduces the nitrogen pressure from the cylinder to what range of pressure?

1. 175 to 200 psig
2. 200 to 400 psig
3. 210 to 230 psig
4. 230 to 250 psig

4-38. In a twin-agent system, what size hoses are used to discharge the (a) AFFF/water solution, and (b) dry chemical?

1. (a) 1 in. 75 ft
   (b) 1/2 in. 75 ft
2. (a) 1 1/2 in 50 ft
   (b) 3/4 in. 50 ft
3. (a) 2 in. 50 ft
   (b) 1 in. 50 ft
4. (a) 2 1/2 in. 125 ft
   (b) 1 1/2 in. 125 ft

4-39. Assuming the dry chemical tank Is filled properly, how long will the PKP discharge last when the nozzle trigger is depressed continuously?

1. 62.5 sec
2. 2 min
3. 5 min
4. 90 sec

4-40. AFFF is used together with PKP in a TAU because AFFF improves the protection that PKP gives by protecting against what danger?

1. Reflash
2. Spontaneous combustion
3. Effects of combustion gases
4. Short circuits in electrical equipment

4-41. A twin-agent unit uses whet type of container for (a) PKP and (b) AFFF in solution?

1. (a) An 80 gal capacity sphere
   (b) a 200-lb capacity cylinder
2. (a) A 200-lb capacity sphere
   (b) an 80-gal capacity cylinder
3. (a) An 80- gal capacity cylinder
   (b) a 200-gal capacity sphere
4. (a) A 200-lb capacity cylinder
   (b) an 80 gal capacity sphere

4-42. The containers for the agents used in a TAU should be pressurized with what gee?

1. Argon
2. Carbon dioxide
3. Nitrogen
4. Oxygen

4-43. What hose configuration is used to discharge the extinguishing agents in a TAU?

1. A single rubber hose, 1 3/4 inches in diameter discharges the agents together
2. Twin rubber hoses, each 150 feet long and 1 1/2 inches in diameter discharge the agents separately
3. Twin rubber hoses with diameters of 1 inch for AFFF and 3/4 inch for PKP
4. Twin rubber hoses with diameters of 3/4 inch for AFFF and 1 inch for PKP

4-44. The operator of a TAU selects the agent or agents to use on a fire by manipulating which of the following devices?

1. The regulator that pressurized the nitrogen cylinder
2. The relief valves that are located on the agent container
3. The nozzles that he holds in his hands
4. The valves that allow the agents to enter the hoses

4-45. When preparing to refill or to secure a TAU, you depressurize the agent containers by which of the following means?

1. Open the relief valves
2. Open the pistol-grip nozzles
3. Both 1 and 2 above
4. Adjust the pressure regulator

4-46. The CO_2 cartridge mounted on the outside shell of a dry chemical extinguisher has which of the following purposes?

1. To maintain the extinguisher shell under pressure at all times
2. To provide a small quantity of gas for standby use
3. To provide the propellant charge
4. All of the above

4-47. The following procedures are used to operate a dry chemical extinguisher at the scene of a fire.

A. Strike the puncture lever to cut the seal of the CO_2 cartridge
B. Pull the locking pin from the cutter assembly
C. Squeeze the grip on the nozzle
D. Approach the fire with the extinguisher in one hand and the nozzle in the other.

The steps should be performed in what order?

1. A, D, B, C
2. D, C, A, B
3. B, A, D, C
4. B, A, C, D

Learning Objective: Point out safety measures principle, and procedures of operating and maintaining shipboard CO_2 fire extinguishing equipment.

4-48. One of the measures taken to prevent CO_2 cylinders from exploding is to use only those replacement disks, nuts, and washers that have been approved by the manufacturer.

1. True
2. False

4-49. Portable CO_2 extinguishers, except those in machinery spaces and on some small craft, have what capacity by weiqht?

1. 10 lb
2. 12 lb
3. 15 lb
4. 53 lb

4-50. What is the most effective way to fight a fire with a portable CO_2 extinguisher?

1. Stand on the leeward side and point the flow of the CO_2 directly above the fire
2. Stand on the windward side and point the flow of the CO_2 directly at the base of the fire
3. Stand on the leeward side and direct the flow of the CO_2 at the base of the fire
4. Stand on the windward side and point the flow of CO_2 directly above the fire

4-51. A 15-pound CO_2 fire extinguisher in storage must be recharged when inspection chows the extinguisher has how much CO_2?

1. Between 14.6 and 14.9 lb
2. Between 14.1 and 14.5 lb
3. Between 13.6 and 14.0 lb
4. 13.5 lb or less

4-52. What is the major disadvantage of CO_2 as a fire extinguisher?

1. It floats on top of burning liquid
2. It is dangerous to personnel in confined spaces because of its smothering action
3. It is poisonous to personnel
4. It leaves a messy condition to be cleaned up after the fire is out

4-53. You have fully charged a cylinder using the transfer unit. When should you turn off the motor?

1. After shutting off the pump outlet valve but before shutting off the extinguisher valve
2. After shutting off both the pump outlet valve and the extinguisher valve
3. Before shutting off both the pump outlet valve and the extinguisher valve
4. Before shutting off the pump outlet valve, but after shutting off the extinguisher valve

4-54. How do you put a CO_2 flooding system into operation?

1. Turn on the fire resin system and slowly open the CO_2 release valve
2. Open the release valve located on the outside of the compartment to be flooded
3. Break the glass on the pull box and connect the hose inside of the box
4. Break the glass on the pull box and pull on the handle inside the box

4-55. If a six-cylinder flooding system instillation is equipped with two CO_2 cylinders with release levers, CO_2 will be released from the remaining cylinders through what type of outlet?

1. A pressure relief valve
2. A disk type release valve
3. A pressure actuated discharge head
4. A poppet valve

4-56. Before operating an installed CO_2 system, you should take which of the following precaution?

1. Turn off all ventilators and close all openings in the compartment
2. Open the exhaust vent and start the ventilators
3. Turn off all ventilators and close all openings in the compartment except the exhaust vent
4. Close all openings in the compartment and start the ventilators

4-57. When operating the hose-and-reel type of CO_2 flooding system, (a) what should be the position of the horn valve when you open the control valve, and (b) to what part of the fire should you direct the CO_2 discharge?

1. (a) Closed
   (b) Center of the flame
2. (a) Closed
   (b) base of the flame
3. (e) Open
   (b) center of the flame
4. (a) Open
   (b) base of the flame

4-58. Halon 1301 systems are located in how many major types of spaces?

1. One
2. Two
3. Three
4. Four

4-59. How many types of Halon 1301 systems are available?

1. Five
2. Two
3. Three
4. Seven

4-60. Halon 1301 is in what form when stored in storage cylinders?

1. Gas
2. Liquid
3. Semi-solid
4. Solid

4-61. Halon cylinders are super pressurized with what type of gee?

1. Argon
2. Carbon dioxide
3. Helium
4. Nitrogen

4-62. Halon 1301 has been used to fight a fire in a co,mpartment. Before you can enter the compartment, you should allow a soaking period of how many minutes?

1. 5 min
2. 10 min
3. 15 min
4. 30 min